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Book Reviews

Chemistry of organic fluorine compounds II: A critical review. ed. M. Hudlicky & A. E. Pavlath, American Chemical Society, Washington DC, 1995, xxi + 1296 pp., price US$169.95.
ISBN 0-8412-2515-X

To anyone in the field the name Hudlicky is synonymous with the bible of the organofluorine chemist, *The Chemistry of Organic Fluorine Compounds*, published in 1972. That book contained over 900 pages, and covered the literature up to 1971. There was a second edition in 1976, which was reprinted though not updated, in 1992. Now Milos Hudlicky has topped his first book, in collaboration with Attila Pavlath, with a mammoth 1296-page successor. This book is an update, covering the literature from 1972 to 1991.

Such a big effort needed help, and this time the book is the product of 44 contributors, with Hudlicky and Pavlath as the editors, and authors of three chapters. The range of topics is similar, starting with a very useful chapter surveying the literature with references to over 160 monographs and key references and reviews, followed by a short chapter surveying fluorinating agents. The body of the book is then taken up with two main sections, each one split into short chapters written by the various contributors. The first main section, on methods of introducing fluorine into organic molecules, contains 11 chapters, with topics such as addition of fluorine, and electrophilic fluorination. The second main section, on reactions of organic fluorine compounds, contains 23 chapters on topics such as reduction, oxidation or arylation. There are then four shorter chapters on the properties, analysis and applications of fluorinated compounds, and their use as reagents.

Since the original edition there has been a huge increase in literature on fluorine chemistry, and the new edition has taken this into account. For example the reactions of fluoro-organometallic derivatives, which occupied 54 pages in the first edition, have now expanded to 83 pages. Similarly, methods for introducing fluorine into molecules occupied 124 pages in the first edition, but take up 230 in the new edition. It is not easy to assess how well such a large volume has dealt with this increased literature, but the coverage of the chapters does seem to be very thorough, and they have been written so that reference does not have to made back to the first edition. Another difference is that the first edition was titled as a laboratory manual, with 54 pages detailing 205 experimental procedures. The new version contains only 18 experimental procedures, of new reactions from the intervening period.

The book is copiously referenced, and a nice touch is that at the bottom of each page is given the page number locating the references on that page. However, a minor irritation with the layout is that the page headings refer to main sections, rather than individual chapters, making it difficult to locate a chapter by browsing. It is also a pity that the applications of fluorinated compounds are so cursorily dealt with in the final chapters. For example there is barely one page of text dealing with agrochemicals, which is an area where fluorine has had a great impact.

However, there is no doubt that this is an excellent book, and that considering its length and coverage it is good value for money. It will make a valuable addition to the bookshelves, though at $169 more probably to those of the library rather than the individual.

P. J. Crowley

Pesticides in the hydrologic system—pesticides in the atmosphere: Distribution, trends and governing factors. Michael S. Majewski & Paul D. Capel, Ann Arbor Press Inc., Chelsea, Michigan, 1995, 214 pp., price UK£36.95
ISBN 1-57504-004-2

This book is one from the series entitled '*Pesticides in the Hydrologic System*', a series which reviews and analyses current knowledge and understanding of pesticides in the water resources of the United States.

This particular volume, entitled '*Pesticides in the Atmosphere*', is a comprehensive review of most of the existing literature covering the occurrence and distribution of pesticides in the atmosphere of the US and adjoining Canadian Provinces. In undertaking the review, the authors have been particularly successful in the collation and subsequent analysis of the information available from numerous studies across a wide range of

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spatial and temporal scales. As with the other volumes in the series, this book is aimed at a wide range of readers within the environmental sciences.

Chapter 1 provides a general introduction to the topic, commenting on pesticide usage in the US and setting out a useful summary of review articles published between 1964 and 1994 on the chemical and physical processes undergone by pesticides and related compounds in the atmosphere.

Chapter 2 is largely devoted to the tabulation of the available published literature into a digestible format. Three tables, each reporting on a number of key selected features/characteristics conveniently categorise the studies according to type as follows: (a) pesticide processes and matrix distribution studies; (b) local and state monitoring; and (c) national and multistate monitoring. Although data are reported for a number of pesticide classes, predictably, most of the information available relates to organochlorine pesticides because of the long-standing environmental concerns associated with these particular compounds.

Chapter 3 examines national trends and distribution patterns concluded from the reviewed literature for the major pesticide classes and, in particular, organochlorine, organophosphorus and other insecticides, triazines and acetanilide herbicides. The authors' ability to undertake an analysis of the available data in the context of long-terms trends has been restricted because of the limited number of national and large-scale regional studies undertaken in the last 30 years. Despite these problems the authors have drawn sensible conclusions in cases where there are sufficient data.

Chapter 4 provides an overview of the principal factors influencing the occurrence and distribution of pesticides in the atmosphere. Consideration is given to sources of pesticide contamination, transport processes and the mechanisms of transformation and removal from the atmosphere. The treatment, whilst not being overly detailed, is pitched at a level which provides a good general introduction to the processes governing pesticide movement.

There follows in Chapters 5, 6 and 7 a discussion of the key issues raised in relation to the national distribution patterns and trends observed for pesticide concentrations in the atmosphere and their impact on surface and ground water bodies. The three chapters deal respectively with: (a) pesticide sources and transport; (b) phases, properties and chemical fate; and (c) the environmental significance of pesticides in the atmosphere. These issues are dealt with adequately in the light of the information available, although perhaps the section on the significance to human health could have benefited from a slightly more in-depth treatment.

Overall, the book is well balanced, provides a good overview of the subject matter and would be a welcome addition to the bookshelf of those with a keen interest in the environmental sciences. The extensive bibliography of approximately 350 references provides the material required for those wishing to delve into the subject in greater depth.

G. H. Merson

Urban entomology: insect and mite pests in the human environment. William H. Robinson, Chapman and Hall, London and New York, 1996, xv + 430 pp., price UK£24.99.
ISBN 0-412-60750-6

The concept of urban entomology as a discipline distinct from agricultural or medical entomology was due to Professor Walter Ebeling of the University of California who defined the subject area in his classic text as the study of those insects which have adapted to man's domestic and urban environment and which present a direct threat to his health or the fabric of his property—or which limit an aesthetic enjoyment of his domestic surroundings. Most insect groups which would normally be included in text-books of medical entomology are within its compass, as well as nuisance pests such as cockroaches, wasps, spiders and ants, the structural pests—termites, wood-boring beetles and some wasp and ant species—and pests of the managed urban environment—gardens and parks. Perhaps what distinguishes the subject most clearly from medical or agricultural entomology is in the way it focuses on man's social biology, the manner in which he constructs domestic and urban environments and his cultural attitude to insects in his home, workplace or garden. Insects may cause distress and provoke control measures simply because they cross the domestic threshold uninvited, disobeying one of the cardinal rules of human societies throughout the world. The damage which they cause to health or property may in some cases be second issues.

In the twenty or so years since the publication of Ebeling's book, the study of urban entomology has gained widespread acceptance in the United States. This is perhaps not surprising in view of the large sums spent each year on insecticides and related products designed to rid buildings of uninvited insect visitors. One estimate put the US professional and consumer market for pesticides used for this purpose at about $1.1 billion in 1991. Europe, which has similar urban pest problems, has possibly not yet afforded the subject the status of the traditional entomological disciplines, perhaps reflecting differing cultural attitudes to domestic pest problems across the continent. The first two meetings of the International Congress on Insect Pests in the Urban Environment (1994, 1996) were held in the United Kingdom and the next will be held in Prague in 1998, reflecting an increasing level of interest at a professional and research level.